REMARKS

These remarks are responsive to the Final Office Action of May 31, 2006. Claims 1, 2, 6-10, and 16-19 are pending, claim 3-5 and 11-15 having been cancelled and claims 16-19 having been added by the amendment above. Upon entry of the present amendment, all pending claims are in condition for allowance.

Applicant would like to thank Examiner Afremova for the personal interview granted to Dr. Daniel Buttry and Applicant's representative, Matthew Graham, on September 14, 2006. This response may be considered both a summary of the issues discussed in the interview as well as a response to the outstanding Final Office Action.

None of the cited references, either alone or in combination, disclose each element of the pending independent claims. Accordingly, an anticipation and/or obviousness rejection is improper. For example, the cited references, either alone or in combination, do not disclose reducing the fluorescence of fluorophore associated with extracellular particulates. Such extracellular particulates are of such a size that they can be falsely identified as a cell in a flow cytometer (i.e., an apparatus that measures light scatter in addition to fluorescence, the light scatter measurement being related to the size the object being measured). Examples of such extracellular particulates include minerals. As described in Examples 1 and 2 and shown best in Figures 2 and 4, fluorophore can associate with such extracellular particulates in solution and be identified as a cell false positive in a flow cytometer. The methods and solutions of the pending claims are useful for quenching the fluorophore associated with such extracellular particulates to reduce the false positive count detected by a flow cytometer.

In contrast, Knapp et al. discusses increasing the signal to noise ratio for a bulk fluorescence measurement taken by a fluorometer by reducing the fluorescence from free fluorophore in solution. Knapp et al. does not disclose detecting cells with a flow cytometer. Such systems are very different because fluorometers measure the bulk fluorescence emitted from a solution, rather than counting individual cells as in a flow cytometer. Accordingly, Knapp et al. does not disclose and is not concerned with quenching fluorophore associated with particulates because fluorophore association with particulates is irrelevant to the measurement being taken by the fluorometer. Likewise, the free fluorophore quenching discussed in Knapp et al. is irrelevant to the claimed invention because such free fluorophores do not show up as cells in a flow cytometer because they are too small to be measured as a cell. Further, with regard to the obviousness rejection, Knapp et al. appears to teach away from the claimed invention because it states that particulates can act beneficially by scattering away undesirable solution fluorescence. See Col. 11, lines 1-3 and Col. 31, lines 3-5. Accordingly, Knapp et al. does not disclose all the features of the claimed invention nor render them obvious, and allowance of the present claim set is earnestly requested.

Cubbage et al. also does not disclose a method of reducing background fluorescence of fluorophore associated with extracellular particulates. Rather, Cubbage et al. discusses reducing background fluorescence from cells caused by fluorescent probe that is attached to a cell at some place other than its intended target, which is referred to as non-specific background emission. Applicant has amended the present claims to refer to "extracellular particulates" to make clear that the particulates are not cells.

In addition, Cubbage et al. does not disclose a chemical agent that is impermeant to the cells. As explained in Applicant's specification, chemical agents that are impermeant to cells are useful for avoiding the quenching of fluorophore within the cells that are to be counted with the flow cytometer. Further, with regard to the obviousness rejection, Cubbage et al. also appears to teach away from the claimed invention. For example, the quenching agents in Cubbage et al. are designed to penetrate the cell wall so they can enter the cell and quench the probe that has bonded non-specifically to the cell. See Col. 3, lines 41-43 and Col. 4, lines 12-16. In contrast, independent claims 1 and 16 explicitly call for a "chemical agent which is impermeant to said one or more cells" and independent claims 2 and 19 call for Acid Black 48, which is impermeant to cells as defined and discussed within the specification. Accordingly, the methods disclosed in Cubbage et al. and the present claimed methods are explicitly incompatible, and Cubbage et al. does not render the claims obvious. Allowance of the present claim set is earnestly requested.

With regard to new independent claim 19, none of the cited references disclose the use of Acid Black 48 to quench nucleic acid probe SYTO 62 associated with extracellular particulates. Acid Black 48 has characteristics that make it particularly useful for methods of the claimed invention. For example, Acid Black 48 has a spectral overlap that allows it to appropriately quench many common fluorescent probes, such as SYTO 62. In addition, commercially available Acid Black 48 has a charge that makes it impermeant to cells, thereby allowing it to quench fluorophore associated with particulates without unduly quenching fluorophore within cells that are to be counted with a flow cytometer. Accordingly, Applicants believe that Acid Black 48 is surprisingly useful as a quenching agent and that this discovery is patentable.

As discussed above, none of the cited references, either alone or in combination, disclose each element of the pending independent claims. Further, both Knapp et al. and Cubbage et al. appear to teach away from the claimed invention. Accordingly, it is respectfully requested that the anticipation and obviousness rejections be withdrawn.

In view of the foregoing, it is submitted that this application is in condition for allowance. Favorable consideration and prompt allowance of the application are respectfully requested.

The Examiner is invited to telephone the undersigned if the Examiner believes it would be useful to advance prosecution.

Respectfully submitted,

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Matthew J.S. Graham
Registration No. 54,647

Customer No. 22859
Fredrikson & Byron, P.A.
200 South Sixth Street, Suite 4000
Minneapolis, MN 55402-1425 USA
Telephone: (612) 492-7087
Facsimile: (612) 492-7077